Leaflet

SOT8065

New extremely thin leadless small outline package with side wettable flanks

Nexperia leads the way in package innovation for Automotive applications. The latest GZ package introduces Side Wettable Flanks in low pin count ICs enabling cost efficient Automated Optical Inspection to reach greater heights in solder reliability.

Nexperia's latest addendum to its logic portfolio is the new SOT8065 package. It has been designed to serve the automotive market segment and raise the quality and reliability standards to whole new level at low cost.

Electrification of cars and miniaturization of automotive applications is the fastest growing market segment. As a world leader in automotive logic with over a 100 billion chips shipped every year, Nexperia remains committed to solve challenges faced by its customers.

One such challenge is migrating from large leaded packages to smaller leadless packages while keeping production costs low and maintaining high standards of product quality. The SOT8065 delivers a whopping 68% PCB area saving compared to a leaded package such as SOT353. This empowers our customers to built elegant and compact solutions.

SOT8065 features side wettable flanks which allows customers to verify the soldering using inexpensive automated optical inspection instead of Xray. Hence enabling high quality solutions while reducing over all product cost.

Key Features

- Automotive Qualified AEC-Q100 leadless package
- Side Wettable Flanks enabling low-cost automated optical inspection
- 1.1 mm x 0.85 mm x 0.47 mm
- Uses same die as used in SOT353
- ~68% PCB area saving compared to SOT353
- Zero delamination, MSL 1
- Uniform 7 µm layer on pad sides and bottom
- RoHS and dark green compliant

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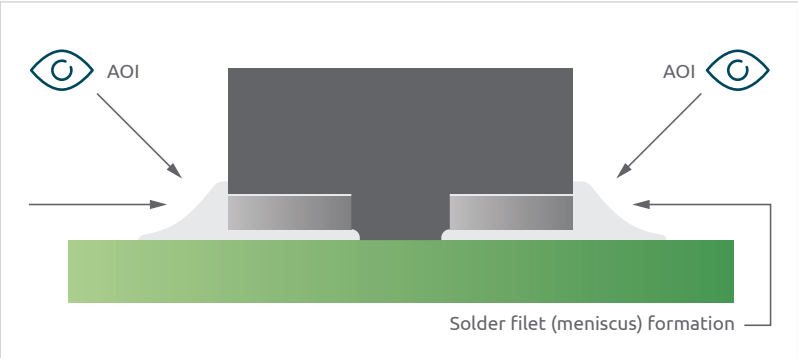
EFFICIENCY WINS.

SOT8065 supports Automated Optical Inspection (AOI)



- Solder Filet rises along the side wall of the pad during soldering step
- This filet can be inspected with high accuracy using AOI

Advantages

- High Quality solder connections
- Optimal visual solder inspections
- Mechanical robustness of the bond against shear stress

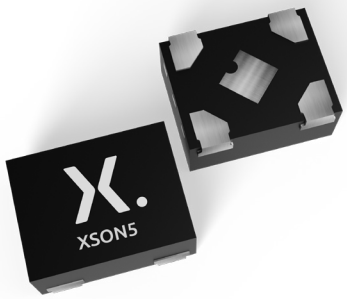
Voltage Families in SOT8065

		HC(T)	AHC(T)	LVC	LV1T	AUP	AUP1T
Key Parametric	Supply voltage (V)	2.0 – 6.0	2.0 – 5.5	1.65 – 5.5	1.6 to 5.5	0.8 – 3.6	2.3 to 3.6
	Propagation Delay (Typ) (ns)	9	5	1.7	13.5	3.4	4
	Output drive (mA)	+8	+8	+24	±8	+1.9	±4
	Standby Current (µA)	80	40	10	10	0.9	1.4..3.5
	AEC-Q100 Grade	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
	Product Count	20	44	38	2	22	2

		HC(T)	AHC(T)	LVC	LV1T	AUP	AUP1T
Key Features	Overvoltage Tolerant I/Os		✓	✓	✓	✓	✓
	Schmitt Trigger Inputs	✓	✓	✓			✓
	Low Threshold Inputs				✓		✓
	TTL Inputs	✓	✓		✓		
	Input Clamp Diodes	✓					
	Power-Off Leakage Protection			✓		✓	✓
	Open Drain Outputs	✓	✓	✓		✓	

Functions in SOT8065

		HC(T)	AHC(T)	LVC	LV1T	AUP	AUP1T
Functions	Buffers		✓	✓		✓	
	Flip Flops		✓	✓			
	Gates	✓	✓	✓		✓	
	Inverters		✓	✓		✓	
	Switches			✓			
	Translators				✓		✓



Product Portfolio Q100 Types

Family	Sales item	Buffers
AHC	74AHC1G125GZ-Q100	Bus buffer/line driver; 3-state
AHC	74AHC1G126GZ-Q100	Bus buffer/line driver; 3-state
AHC	74AHC1G07GZ-Q100	Buffer with open-drain output
AHC	74AHC1G17GZ-Q100	Single Schmitt trigger buffer
AHCT	74AHCT1G125GZ-Q100	Bus buffer/line driver; 3-state
AHCT	74AHCT1G126GZ-Q100	Bus buffer/line driver; 3-state
AHCT	74AHCT1G17GZ-Q100	Single Schmitt trigger buffer
AUP	74AUP1G125GZ-Q100	Low-power buffer/line driver; 3-state
AUP	74AUP1G34GZ-Q100	Low-power buffer
AUP	74AUP1G07GZ-Q100	Low-power buffer with open-drain output
LVC	74LVC1G07GZ-Q100	Buffer with open-drain output
LVC	74LVC1G126GZ-Q100	Bus buffer/line driver; 3-state
LVC	74LVC1G34GZ-Q100	Single buffer
LVC	74LVC1G125GZ-Q100	Single bus buffer/line driver; 3-state
LVC	74LVC1G17GZ-Q100	Single Schmitt trigger buffer

Family	Sales item	Inverters
AHC	74AHC1G14GZ-Q100	Inverting Schmitt trigger
AHC	74AHC1GU04GZ-Q100	Inverter
AHC	74AHC1G04GZ-Q100	Inverter
AHCT	74AHCT1G14GZ-Q100	Inverting Schmitt trigger
AHCT	74AHCT1G04GZ-Q100	Inverter
AUP	74AUP1G06GZ-Q100	Low-power inverter with open-drain output
AUP	74AUP1G04GZ-Q100	Low-power inverter
LVC	74LVC1G14GZ-Q100	Single Schmitt-trigger inverter
LVC	74LVC1G04GZ-Q100	Single inverter
LVC	74LVC1GU04GZ-Q100	Unbuffered inverter
LVC	74LVC1G06GZ-Q100	Inverter with open-drain output

Family	Sales item	Switches
LVC	74LVC1G66GZ-Q100	Bilateral switch
LVC	74LVC1G384GZ-Q100	Bilateral switch

Family	Sales item	Translators
LV1T	74LV1T04GZ-Q100	Single supply translating inverter
AUP1T	74AUP1T34GZ-Q100	Low-power dual supply translating buffer

Family	Sales item	Flipflops
AHCT	74AHCT1G79GZ-Q100	Single D-type flip-flop; positive-edge trigger
LVC	74LVC1G80GZ-Q100	Single D-type flip-flop; positive-edge trigger
LVC	74LVC1G79GZ-Q100	Single D-type flip-flop; positive-edge trigger

Family	Sales item	Gates
AHC	74AHC1G08GZ-Q100	2-input AND gate
AHC	74AHC1G32GZ-Q100	2-input OR gate
AHC	74AHC1G00GZ-Q100	2-input NAND gate
AHC	74AHC1G09GZ-Q100	2-input AND gate with open-drain
AHC	74AHC1G02GZ-Q100	2-input NOR gate
AHC	74AHC1G86GZ-Q100	2-input EXCLUSIVE-OR gate
AHCT	74AHCT1G08GZ-Q100	2-input AND gate
AHCT	74AHCT1G32GZ-Q100	2-input OR gate
AHCT	74AHCT1G02GZ-Q100	2-input NOR gate
AUP	74AUP1G08GZ-Q100	Low-power 2-input AND gate
AUP	74AUP1G00GZ-Q100	Low-power 2-input NAND gate
AUP	74AUP1G02GZ-Q100	Low-power 2-input NOR gate
AUP	74AUP1G32GZ-Q100	Low-power 2-input OR-gate
AUP	74AUP1G132GZ-Q100	Low-power 2-input NAND Schmitt trigger
AUP	74AUP1G09GZ-Q100	Low-power 2-input AND gate with open-drain
HC	74HC1G08GZ-Q100	2-input AND gate
HC	74HC1G32GZ-Q100	2-input OR gate
HC	74HC1G02GZ-Q100	2-input NOR gate
HC	74HC1G00GZ-Q100	2-input NAND gate
HC	74HC1G86GZ-Q100	2-input EXCLUSIVE-OR gate
HCT	74HCT1G08GZ-Q100	2-input AND gate
HCT	74HCT1G02GZ-Q100	2-input NOR gate
HCT	74HCT1G32GZ-Q100	2-input OR gate
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HCT	74HCT1G86GZ-Q100	2-input EXCLUSIVE-OR gate
LVC	74LVC1G08GZ-Q100	Single 2-input AND gate
LVC	74LVC1G32GZ-Q100	Single 2-input OR gate
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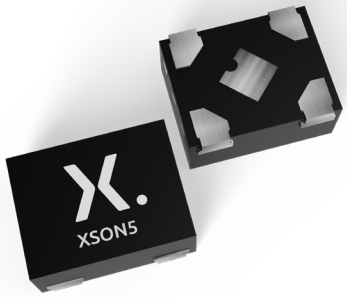
LVC	74LVC1G86GZ-Q100	2-input EXCLUSIVE-OR gate
LVC	74LVC1G38GZ-Q100	2-input NAND gate; open drain



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AUP	74AUP1G34GZ	Low-power buffer
AUP	74AUP1G07GZ	Low-power buffer with open-drain output
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LVC	74LVC1G126GZ	Bus buffer/line driver; 3-state
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HC	74HC1G08GZ	2-input AND gate
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HC	74HC1G02GZ	2-input NOR gate
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LVC	74LVC1G38GZ	2-input NAND gate; open drain

Benefits

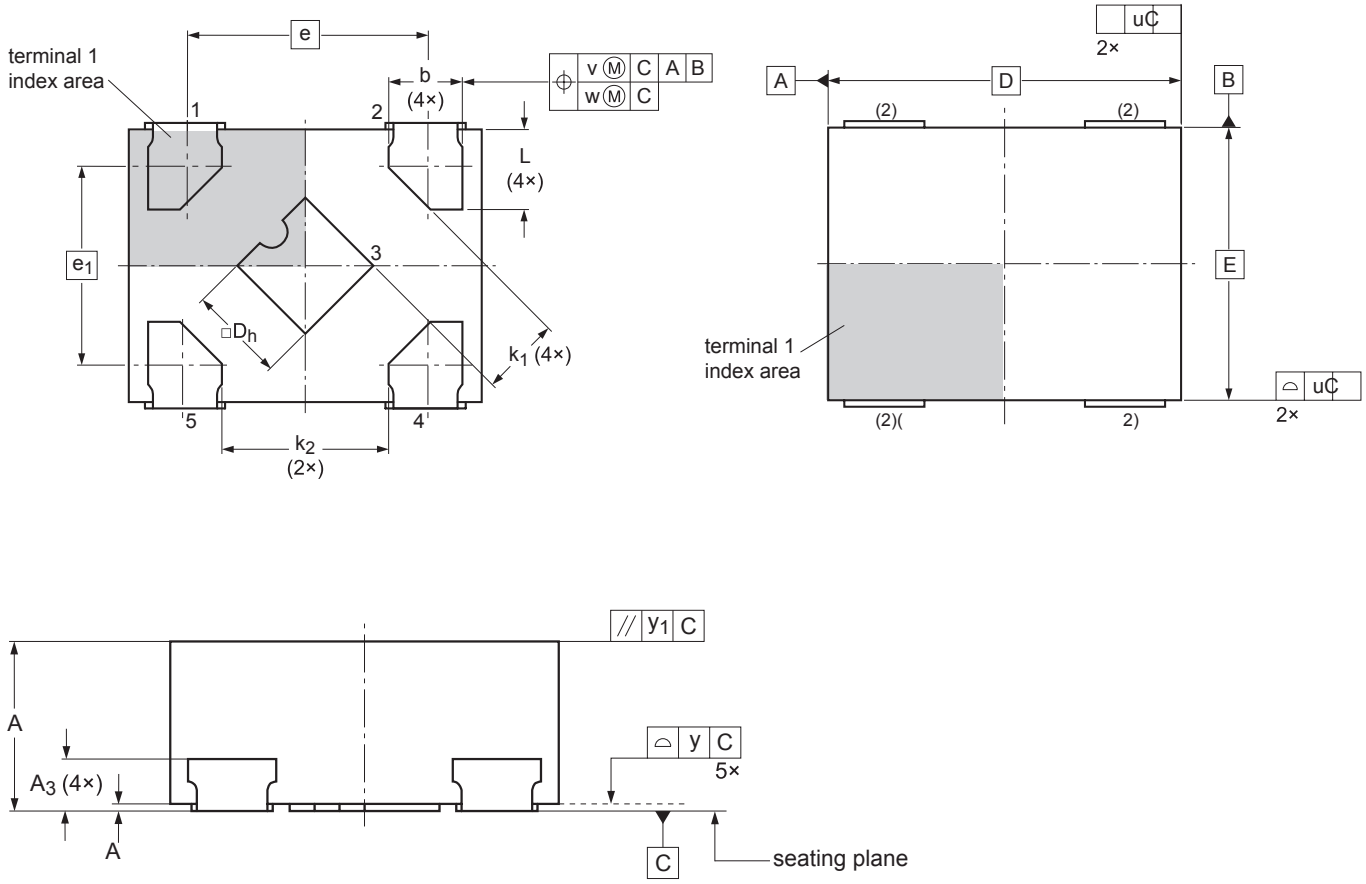
SOT8065 offers better features compared to leaded packages such as:

- Mechanical robustness and superior durability
- Lower parasitic inductance
- Better signal integrity for high-speed applications
- Reflow soldering automatically corrects placement errors
- Higher contact-area-to-package-area ratio

Applications

- ADAS (Advanced Driving Assistance System)
- Body Control
- Chassis safety system: air bag controller, anti-lock braking system
- Connectivity and telematics
- Factory automation, medical wearables and consumer applications

Package Outline



Dimensions (mm are the original dimensions)

Unit		A(1)	A1	A3	b	D(1)(	Dh	E 1)	e	e1	k1	k2	L	u	v	w	y	y1
	max	0.50	0.040		0.28		0.35						0.30					
mm	nom	0.47	0.020	0.135	0.23	1.10	0.30	0.85	0.75	0.6			0.25	0.05	0.1	0.05	0.05	0.05
	min	0.44	0.005	(typ)	0.20		0.27				0.2	0.45	0.22					

Date of release:
November 2024